
Insect Natural History. *A. D. Imms.* The Blakiston Co. Philadelphia, New York, Toronto. First Edition. 1951. xviii+317 pp. $5.00.

The author presents in an interesting and non-technical manner many of the diverse phases of insect life. One should be able to read this volume easily without technical knowledge of entomology. The chapter on insect structure and transformation gives, in about twenty pages, a remarkably adequate coverage of fundamentals in these phases. Insect classification and nomenclature are very briefly discussed in line with the author's purpose of producing a non-technical volume. Sections on insect flight, sensory physiology, food habits, biological control, gall formation, means of protection, reproduction, aquatic adaptations and social life of insects follow. Important facts and concepts concerning each of these topics are briefly and clearly presented and beautifully illustrated by examples chosen from common insects of the British Isles.

The book contains seventy-two excellent plates depicting common British insects; thirty-two in black and white and forty in color. The species chosen have close relatives in the United States, so that American students should have no difficulty in recognition of the forms and proper association of the text material. The book will serve as a valuable reference on insect life for beginning students in biology, zoology and general entomology. As a text in entomology, it would have to be supplemented by additional material on classification and identification. Altogether this delightful, well-written book is well worth reading.

W. C. STEHR

BOOK NOTICES

Physical Geography. *Arthur N. Strahler.* John Wiley & Sons, Inc. New York. First Edition. 1951. ix+442 pp. $6.00.

Physical Geography by Strahler is a much needed modern text for a course in physical geography. Whereas most of the recent texts that deal with earth science disciplines have been incorporated with cultural and human geographic factors, this one departs from that modern trend in pertaining only to the physical. Written by a geomorphologist, it will find favor with many but will be criticized by those geographers who hold to the premise that all geography must interrelate the physical with the cultural and human aspects.

This well-written book, with one major exception, places adequate emphasis upon the various earth science topics. The illustrations are many and excellent. Numerous exercises to supplement the reading will enable students to better understand the material presented.

The reviewer feels that the section on climate constitutes the weakest part of the book. In an attempt to get away from climatic classifications with complex formulas and the resulting clear-cut boundaries between various climate types, over-simplification has resulted which may leave the reader with a hazy idea of the climatic types of the world. Neither in written material nor in the use of maps does one get a clear picture of where these various climates are located.

The author has been extremely successful in achieving his goal of writing a text which adheres to the disciplines of the physical sciences. It is highly recommended for those introductory and general courses which place the emphasis upon the elements of physical geography. However, if the course is designed to combine the physical principles with the social and cultural phases of geography, this text would serve better as a reference work.

JOSEPH C. BUFORD

Mineralogy. *E. H. Kraus, W. F. Hunt* and *L. S. Ramsdell.* McGraw-Hill Book Co., New York. Fourth Edition. 1951. ix+664 pp., illustrated. $7.50.

The fourth edition of this widely known text is a volume essentially for the embryo mineralogist. Those who have used the older edition will find no extensive revision.

The first nine chapters present a fine discussion of crystallography, but the pictures of the solid crystals models lack depth. Chapters X to XIII deal thoroughly with the external and internal physical properties of minerals, including sections on basic optical mineralogy, crystal structure and X-ray analysis, and chemical properties. Chapters XIV and XV adequately discuss the formation and occurrence of minerals, and techniques of blowpipe identification. The description of minerals in Chapter XVI is useful reference material; the same might be said of Chapter XVII on gemstones. Chapter XVIII provides reference on classification of minerals according to elements.

A glossary of terms, tables of symmetry, tables of mineral determination and a selected bibliography will prove useful as study aids. Some instructors have expressed the opinion that these tables are difficult to use.

The book is unusually broad in scope and extensively illustrated. Some of the illustrations, however, are poor in quality, perhaps due to the use of worn plates.

C. N. SAVAGE

Stratigraphy and Sedimentation. *W. C. Krumbein* and *L. L. Sloss.* W. H. Freeman Co. San Francisco. 1951. ix+497 pp. $5.00.

Most geologists will welcome reintegration of these subjects as treated by the authors of this text. Students of sedimentology may decry the lack of the hypermathematical approach usually found under the name of Krumbein, but most geologists outside that field will applaud the somewhat simpler, though insistently quantitative methods of this book.

The book is designed primarily as a text for advanced undergraduate and beginning graduate students, but since it condenses and synthesizes those studies of sedimentation which are most closely related to stratigraphy, it should find a place in the reference library of many practicing stratigraphers. Teachers of stratigraphy who feel that a course in the subject should not be simply a recital of classical sections and type localities will find a stimulating approach in this book. Senior students with a good background in geology and allied fields find the text to be readily comprehended. Those engrossed in sedimentary petrology will find little of interest.

The authors present no new techniques or hypotheses. However, information formerly available only to specialists in certain fields has been clearly explained in this text and thus made useful to others. The book is, in short, sedimentation for stratigraphers.

The development is logical. Basic procedures of field stratigraphy are first reviewed, followed by a brief discussion of sedimentary petrology and processes, leading to the interpretation

of sedimentary environments. The introduction of stratigraphic paleontology follows, which in turn brings up the problems of facies and correlation. The final part of the book deals with the study of regional tectonics which serves as a framework for the interpretation of paleogeography. The final chapter, entitled "Paleogeography" represents only a variation on themes stated in earlier chapters. It would seem that this topic could be either completely integrated into the other chapters or treated in somewhat more detail.

Advanced students and research workers will value the extensive bibliography, containing over 500 entries. Supplementary readings listed at the end of each chapter suggest additional studies for advanced students.

Finally, the Freeman Company must be complimented for the pleasing appearance of the book. Typographical errors are few.

HENRY H. GRAY

Taxonomy of Vascular Plants. *George H. M. Lawrence.* Macmillan Co. New York. First Edition. 1951. xiii+823 pp. $7.95.

For the first time all existing essential data on the taxonomy of vascular plants is appropriately gathered together in one well-composed and scholarly written volume.

The author's treatment of historical background, the tenets of plant nomenclature and the several codes adhered to by those who will classify plants is both masterful and interesting.

The sections on plant identification and field and herbarium techniques include in a large measure most of the current methods practiced by the technicians and curators of the larger herbaria both internationally and in the United States. The text is further enhanced throughout by clever suggestions and criticisms of the author who quickly points out faults and disadvantages in methods, techniques, collecting, mounting media, devices, etc.

An innovation in taxonomic literature is encountered in Part I of the book in which the author skillfully analyzes the strong linkages and interdependence of taxonomy with other well-established branches of modern science.

The author clearly demonstrates the importance of a paleobotanical foundation to a natural scheme of any fundamental classification. Familes are arranged according to the Engler System (1936).

An excellent glossary in the Second Appendix adequately explains the terminology which includes some new but accepted usage. An outline of an elementary course in taxonomy has been inserted for the convenience of the teacher.

The text, far in advance of anything published in the field of taxonomy, should enjoy wide adoption for it is ideally suited to the needs of both student and teacher.

A. H. BLICKLE

A Laboratory Guide to the Anatomy of the Rabbit. *E. Horne Craigie.* University of Toronto Press. Toronto. 1951. First Edition. viii+113 pp. $2.75.

This book, though less detailed than its well-known predecessor (Bensley's "Practical Anatomy of the Rabbit"), is no less useful in the field of Comparative Vertebrate Anatomy. In fact, it may find more widespread use as a laboratory guide in its present form, especially in courses which are designed to cover representatives of vertebrate classes beyond the mammal. Professor Craigie has produced a manual which is far more readable than Bensley's and at the same time has lost none of the most important points with respect to mammalian anatomy.

Dr. Craigie's typically clear, concise presentation makes this text useful for both classroom and independent work. No vertebrate anatomy reference library is complete without this book and its companion volume mentioned above. The author has organized the text material according to organ systems and secondarily according to regions; he has also presented his material with a view to the functional aspect of anatomy.

FRED H. GLENNY

Atomics Physics. *Wolfgang Finkelnburg.* (George E. Brown, translation). McGraw-Hill Book Co., Inc. New York. First Edition. 1950. x+498 pp. $6.50.

The scope of this book is more ambitious than one would imagine from merely reading the title. One finds, in addition to the subjects usually associated with atomic physics, discussions of molecular physics and the liquid and solid state. This broad coverage necessitates a concise treatment of all the topics covered. However, the well-organized topics are complete enough so that one with some background in physics and mathematics could follow the trends of thought without great difficulty. This feature should prove especially interesting for those in related fields who have fallen behind in the rapid pace we have been traveling and desire to catch up with a minimum of wasted effort. A bibliography follows at the end of each chapter. In the

text material recognition is given to those investigators who have made important contributions to the subject at hand. However, reference to original source material is lacking.

Space being at a premium, the author at times takes short cuts in mathematics, for example, the derivation of the change in wavelength of a quanta in Compton scattering. A derivation for the wavelength shift is made without taking into account the relativity correction for the mass of the recoil electron. The author contends that the simple derivation gives the same results as the rigorous relativistic derivation. However, he did not mention the errors introduced in the approximation, how they cancelled out or why we ever should bother with the more rigorous derivation since it gives the same results.

The author does a good job interrelating various ideas in the field and in tracing the interlinking of experimental results, their apparent inconsistencies, and the resulting changes in theoretical concepts which were forced upon the scientists by these apparent contradictions.

EDWARD S. FOSTER, JR.

Elements of World Geography. *J. Riley Staats* and *G. E. Harding*. D. Van Nostrand Company. New York. 1951. vi+378 pp., maps, illustrations, questions, index. $4.25.

This book represents another addition to the extensive list of texts designed for introductory courses in geography. It is designed to meet the needs of a full semester of geography at the college level.

The arrangement of the book is characteristic of many texts dealing with similar material. The elements of the physical environment are analyzed in a systematic fashion. Instead of being divided into two sections like many introductory texts, it is based on a systematic analysis of the more important physical aspects with an attempt to integrate cultural features pertinent to each phase. The authors provide a very general and understandable treatment of the major physical aspects but definitely neglect many human or cultural relationships in a number of chapters.

The text includes some good photographs and a number of sketches and maps adequate for ease of interpretation. A larger selection of photographs would prove a helpful addition.

The book should be highly adequate for use as a beginning college text or even at the senior high school level if a systematic approach is desired and if the teacher feels a need for emphasizing the physical aspects.

With all the minor limitations of this text, it seems to give a reasonably understandable treatment without too much highly technical vocabulary. It should be easily adaptable to a fairly wide range of teacher interests and abilities.

JAMES RINIER

Experiments in Biochemistry. *Max S. Dunn* and *William Drell*. McGraw-Hill Book Co., Inc. New York, Toronto, London. 1951. First Edition. viii+198 pp. $5.00.

Drs. Dunn and Drell are to be commended for this stimulating and up-to-date laboratory manual in biochemistry. It offers a wealth of interesting experiments to the beginning student in this field. The forty-six exercises presented allow each instructor wide latitude in the choice of his course material. They are diverse and in several instances, new and unusual. They offer the student opportunity to gain experience in the synthesis, isolation, purification and analysis of typical biochemical compounds and in the quantitative determination of biological substances in a variety of naturally occurring materials.

Syntheses of nine compounds are described including the preparation of phenylalanine, glycine anhydride, glycylglycine and tyramine hydrochloride and an asymmetric enzymatic synthesis of aceyl-L-phenylalanine-p-toluidide which permits the separation of D- and L-phenylalanine.

Directions are given for the isolation of a number of substances from natural sources including asparagine from lupine sprouts, cholesterol from beef spinal cords and L-arabinose from mesquite gum.

Approximately half of the experiments are quantitative in character. In addition to standard gravimetric, volumetric and colorimetric analyses, the authors have included an amide-nitrogen determination using asparagine, polarimetric analyses of L-cystine and of D-lactose, a chemical assay of Vitamin C, a biological assay of Vitamin D and microbiological assays of nicotinic acid and of choline.

A novel exercise involving the separation and identification of purines and pyrimidines using paper chromatography should prove valuable as an introduction to this new and widely used technique.

Detailed discussions of the principles and techniques employed in each experiment are presented. The appendix includes more than nine hundred references to the original and review literature as well as a list of apparatus needed for the course; it also summarizes amounts of reagents and supplies required per student for each experiment.

HAROLD G. ODDY